



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,181	09/23/2004	Swindell Allen Grimsley	PP/3-22330/A/CGC 2113/PCT	7342
324 7590 07/24/2007 CIBA SPECIALTY CHEMICALS CORPORATION PATENT DEPARTMENT 540 WHITE PLAINS RD P O BOX 2005 TARRYTOWN, NY 10591-9005			EXAMINER CORDRAY, DENNIS R	
			ART UNIT 1731	PAPER NUMBER
			MAIL DATE 07/24/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/509,181

Applicant(s)

GRIMSLEY ET AL.

Examiner

Dennis Cordray

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 4/30/2007 have been fully considered but they are not persuasive.

Applicant admits on p 5 that Langley et al provides examples of furnishes comprising broke, but argues that there is no suggestion of coated broke. Applicant also argues on pp 6-7 that there is no confusion between the terms "stickies" used by Langley et al and the more specific term "white pitch." Applicant further states that, while "stickies" might contain white pitch, coated broke will contain white pitch, and that there is no suggestion in Langley et al to use a furnish containing white pitch or coated broke.

Langley et al discloses that that the papermaking stock can be made from any conventional papermaking stock, including stocks comprising recycled or waste pulp (col 8, lines 14-19). It was generally known to those of ordinary skill in the art at the time of the invention that many processes make coated paper and create coated broke, which is recycled (if evidence is needed, see St. John, 5131982, col 1, lines 5-55). From the disclosure of Langley et al and the knowledge generally available to one of ordinary skill in the art at the time of the invention, why would it not be obvious that a stock comprising coated broke and white pitch is included in "any conventional papermaking stock?" Why would it not have been understood by one of ordinary skill in the art that stickies can arise from recycled coated paper and can comprise white pitch,

Art Unit: 1731

and consequently, any treatment targeting the removal or reduction of stickies in papermaking pulps would be expected to apply to coated broke and white pitch as well?

The rejections are maintained and, due to the amended claims, a new rejection is made as detailed below.

***Claim Rejections - 35 USC § 102 and 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Persson et al (5858174) and Langley et al (EP 0235893), which is incorporated by reference into the disclosure of Persson et al.

Claims 1-5: Persson et al discloses a process for the production of paper comprising recycled fiber, de-inked pulp, coated broke, mechanical pulp or any combination thereof (Abs; col 7, lines 36-39). The process comprises adding to the suspension a low molecular weight cationic organic polymer (LMW), a high molecular weight cationic polymer (HMW) and inorganic particles, and forming and draining the suspension on a wire (Abs; col 1, line 50 to col 2, line 8). The anionic particles can be swellable clays of the smectite type, such as bentonite, montmorillonite, hectorite, beidilite, nontronite, saponite, etc (col 6, lines 22-32). Suitable bentonites and hectorites are disclosed in EP 0235893 to Langley et al, which is incorporated by reference (col 6, lines 28-31). Langley et al ('893) discloses that the particle size of the dry bentonite is at least 90% below 100 microns and at least 90% below 2 microns after

swelling (p 8, lines 24-28), thus the bentonite is a microparticle. Alternatively, the anionic microparticles comprise colloidal silica, silicates, polyaluminosilicates, polysilicic acid, and others (col 5, line 25 to col 6, line 21). The polymers are preferably added to the stock before the anionic particles (col 6, lines 48-49).

Claims 6-10 and 13-14: The LMW has a molecular weight below 700,000, a cationicity from 10 to 100 mole-%, preferably from 50-100 mol-%, and preferably comprises polyamines, polyethyleneimines, diallyldimethylammonium chloride, dialkylaminoalkyl(meth)acrylates, dialkylaminoalkyl(meth)acrylamides, preferably their quaternary salts (col 2, line 61 to col 3, line 8). Preferably, the LMW is a copolymer of diallyldimethylammonium chloride, vinylamines, dialkylaminoalkyl(meth)acrylates, dialkylaminoalkyl(meth)acrylamides, as acid addition salts of quaternary ammonium salts (col 4, lines 13-20). The HMW has a molecular weight above 1,000,000, a cationicity from 1 to 100 mole-% and comprises acrylamide, diallyldimethylammonium chloride, polyamines, polyethyleneimines and polyamideamines, and acid addition salts or quaternary salts of dialkylaminoalkyl(meth)acrylates and dialkylaminoalkyl(meth)acrylamides (col 2, lines 36-44; col 4, lines 48-59).

The disclosed polymers significantly overlay the claimed polymers and will inherently function as coagulants because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure

recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claim 11: Persson et al discloses that aluminum compounds, such as alum, and polyaluminum chlorides can be used to further improve drainage or retention (col 7, lines 6-18).

Claims 15-17: Persson et al does not disclose a paper product produced by the process. However, Persson et al teaches that the process is used to produce pulp sheets and paper (col 7, lines 19-26). Paper products are inherently a product made of using the disclosed process or, at least, it would have been obvious to one of ordinary skill in the art to make a paper product using the process.

3. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Persson et al in view of Shimasaki et al (5262570).

Langley et al disclose the use of polyethyleneimines (or polyethylene polyamines) as suitable cationic polymers. Langley et al does not disclose that the cationic polymer is a polyalkylene polyamine prepared by the reaction of an alkylene polyamine with a difunctional halide.

Shimasaki et al teaches that ethylenediamine reacts with ethylene dichloride to form diethylenetriamine and other ethyleneamine adducts, which are polyethylene polyamines (col 1, lines 11-21).

The art of Langley et al, Persson et al and the instant invention are analogous as pertaining to the formation of polyalkylene polyamines. It would have been obvious to

one of ordinary skill in the art at the time of the invention to use the reaction of an alkylene polyamine with a difunctional halide to form the polyalkylene polyamines for the cationic polymers in the process of Langley et al in view of Shimasaki et al as a well known process for making polyalkylene polyamines.

4. Claims 1-11 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langley et al (4913775) in view of Smook (Smook, G.A. "Handbook of Paper and Pulp Technology", pp 155,157) and St. John (5131982).

Langley et al discloses a process for making paper comprising:

- a).adding to the paper stock a cationic polymer followed by addition of
- b) anionic bentonite clay microparticles (at least 90% below 100 microns dry and at least 90% below 2 microns after swelling) (Abstract; col 10, lines 59-63; col 11, lines 3-5; col 11, lines 27-36).

Langley et al discloses that the papermaking stock can be made from any conventional papermaking stock, including stocks comprising recycled or waste pulp (col 8, lines 14-19). Examples are provided wherein the furnish comprises broke (cols 16-19, 22 and 24-25, Examples 4-10, 5 and 20). The cationic polymer has a molecular weight of at least 500,000 (col 8, lines 46-47). The polymer comprises one or more of cationic monomers of diallyldimethyl ammonium chloride, dialkylaminoalkyl-(meth)acrylates or -(meth)acrylamides or quaternary ammonium salts thereof, polyethyleneimines, or polyamine epichlorohydrin. The polymer can be copolymerized with acrylamide monomers (col 8, lines 52-67; col 9, lines 1-2). Cationic monomers are

Art Unit: 1731

preferably present at greater than 10% (col 9, lines 19-26) up to 100% of the monomers (col 8, lines 52-55). The bentonite is defined to include anionic swelling clays such as montmorillonite and Fullers Earth (col 11, lines 3-10).

Langley et al discloses that the cationic polymer is added in an amount from 0.03 to 0.5% based on the dry weight of the paper (col 9, lines 26-30 and 50-67), which overlaps the range used in Examples 1 and 2 on p 9 of the instant Specification. The bentonite is added in an amount from 0.03 to 0.5% (col 10, lines 66-67), which lies within the range disclosed on p 7, 2<sup>nd</sup> par from bottom of the instant Specification.

A particularly preferred embodiment comprises addition of a second cationic polymer of molecular weight between 50,000 and 2,000,000 that results in improved removal of pitch or stickies (col 13, lines 5-17 and 32-33). Preferred second cationic polymers are polymers or copolymers of polyethyleneimine, diallyldimethyl ammonium chloride, dialkylaminoalkyl-(meth)acrylates or -(meth)acrylamides, polyamines and polydicyandiamide-formaldehydes (col 12, lines 19-29). The amount of second cationic polymer added is from 0.01 to 0.5 % based on the dry weight of the stock. The optimum amount of addition (effective amount) can be found by routine experimentation (col 12, lines 63-66). Note that the wording of the instant claims allows for more than one cationic polymer.

Langley et al discloses that the stock can comprise conventional amounts of strengthening agents or alum (col 8, lines 32-45). Alum is also a known retention aid (col 2, lines 15-21), thus will also act as a coagulant.



Langley et al discloses a paper sheet formed using the process (col 14, line 40-62, Example 1).

Langley et al does not disclose reducing the deposition of white pitch or that the recycled paper comprises coated broke.

Smook et al defines stickies and white pitch in the art as follows (Smook, G.A. "Handbook of Paper and Pulp Technology", pp 155,157):

"STICKIES: Sticking conditions in secondary fiber or papermaking systems created by such contraries as ink residuals, tars, latexes, and heat-melt materials. The term "tackies" refers to the same type of problem, perhaps less severe."

"WHITE PITCH: Term used to describe agglomerated white stickies in repulped stock which are derived from the synthetic binders in coated broke."

It was generally known to those of ordinary skill in the art at the time of the invention that many processes make coated paper and create coated broke, which is recycled (see St. John, 5131982, col 1, lines 5-55). From the disclosure of Langley et al and the knowledge generally available to one of ordinary skill in the art at the time of the invention, it would have been obvious that a stock comprising coated broke and white pitch is included in the disclosure of "any conventional papermaking stock."

It is thus understood by one of ordinary skill in the art that stickies can arise from recycled coated broke and comprise white pitch, and consequently, any treatment targeting removal or reduction of stickies in papermaking pulps would be expected to also apply to recycled coated paper comprising latex and/or white stickies.

The art of Langley et al, Smook, St. John and the instant invention is analogous as applying to papermaking stocks comprising stickies or white pitch. It would have been obvious to one of ordinary skill in the art at the time of the invention to treat papermaking pulp comprising recycled coated paper containing latex to remove or reduce stickies (including white pitch) using the cationic polymers and microparticles of Langley et al in view of Smook and St. John as a well known method of treating paper stocks comprising stickies. The treatment would be done with a reasonable expectation of success.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Langley et al in view of Smook and St. John and further in view of Shimasaki et al (5262570).

Langley et al disclose the use of polyethyleneimines (or polyethylene polyamines) as suitable cationic polymers. Langley et al does not disclose that the cationic polymer is a polyalkylene polyamine prepared by the reaction of an alkylene polyamine with a difunctional halide.

Shimasaki et al teaches that ethylenediamine reacts with ethylene dichloride to form diethylenetriamine and other ethyleneamine adducts, which are polyethylene polyamines (col 1, lines 11-21).

The art of Langley et al, Smook, St. John, Shimasaki et al and the instant invention are analogous as pertaining to the formation of polyalkylene polyamines and treatment of impurities in papermaking processes. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the reaction of an alkylene

polyamine with a difunctional halide to form the polyalkylene polyamines for the cationic polymers in the process of Langley et al in view of Shimasaki et al as a well known process for making polyalkylene polyamines.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hjalmarson et al (6391156) discloses a process for making paper comprising coated broke comprising adding a cationic polymer and a clay to the papermaking suspension.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 1731

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
DRC

  
STEVEN P. GRIFFIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700